MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 3, 2022/2023

BBF3124 – FINANCIAL DERIVATIVES

(All sections / Groups)

02 OCTOBER 2023
2:30 p.m – 4:30 p.m
(2 Hours)

INSTRUCTIONS TO STUDENT

1. This Question paper consists of 4 pages (excluding cover page).
2. Attempt **ALL** questions. The distribution of the marks for each question is given.
3. Students are allowed to use non-programmable scientific and financial calculators.
4. Please write all your answers in the Answer Booklet provided.

Answer ALL questions in the answer booklet provided.

QUESTION 1

a) Illustrate at least **ONE (1)** advantage of forwards and **FOUR (4)** advantages of futures contracts?

(15 marks)

b) As the active trader in Bursa Derivatives Market, you noticed that there is a mismatch between FBM KLCI and FKLI December 2023 prices. Today, in September, the quotation of KLCI is at 1480 while December 2023 FKLI at 1495. Risk-free rate is at 6.5% per annum and expected dividend yield is 4.5%. Illustrate on the possible arbitrage strategy and determine the approximate profit in the proposed strategy.

(10 marks)

(Total: 25 marks)

Continued ...

QUESTION 2

a) According to Timiraos and Fairless (2023), the Federal Reserve Chairman, Jerome Powell said it will take years to fight against inflation. As stated by Powell, it is expected that the interest rate hiking will not be stopped in the near future. Thus, as an analyst, how you will advise your clients to position themselves to gain profit. Given that the 3-month KLIBOR is 4.80% and December KLIBOR Futures is 95.00.

i) Suggest the most appropriate strategy and justify your strategy.

(5 marks)

ii) Show the estimated profits from the futures if the interest rate goes up by 1.50%. It is assumed that KLIBOR futures will converge at the maturity.

(5 marks)

b)

i) The year of 2023 is full of uncertainties, the given information as 3 months KLIBOR is 5.80% and 6 months KLIBOR is 6.50%. Whereas the 3 months KLIBOR futures is priced at 95. With your experiences, you noticed that there is a potential mispricing in the KLIBOR futures. To ensure your belief is correct, calculate the correct price for the futures contract.

(10 marks)

ii) Based on the above calculated price, suggest the most appropriate strategy. Is the futures contract overpriced or underpriced and why?

(5 marks)

(Total: 25 marks)

Continued ...

QUESTION 3

You have just bought TM Berhad share at RM 5.00/share. The reason is because you strongly believed that the share will be bullish in the long run. But due to the uncertainties of the market, you plan to avoid the market volatilities and hold on the initial position. Information is given as below:

TM Berhad RM 5.00 Put @ 0.20
TM Berhad RM 5.00 Call @ 0.10

Based on the above information, construct the most appropriate strategy, and name the strategy based on per contract basis. Support your answer with payoff table and graph. You are required to state the net profit/loss that you have locked in.

(25 marks)

(Total: 25 marks)

QUESTION 4

a) Samuel is the professional trader, he noticed that Maybulk Berhad is currently trading at RM 5.00 per share and the exercise price of its 3-month calls is RM 3.80. The risk-free rate of interest expected to prevail is 3.7% per annum while estimate of the underlying stock volatility is 0.5. Samuel instructed you to use Black Scholes Option Pricing Model to calculate the call value.

(20 marks)

b) Bursa Malaysia Berhad currently is trading at RM 4.60, the exercise price call options of Bursa Malaysia Berhad is RM 3.50. The time value of the call option is RM 0.28. Calculate the premium for the call options and what will happen to the premium and time value if the maturity of the call options is extended to another 6 months.

(5 marks)

(Total: 25 marks)

Continued ...

Table: Cumulative Normal Distribution

d	$N(d)$	d	$N(d)$	d	$N(d)$	d	$N(d)$	d	$N(d)$	d	$N(d)$
−3.00	.0013	−1.58	.0571	−0.76	.2236	0.06	.5239	0.86	.8051	1.66	.9515
−2.95	.0016	−1.56	.0594	−0.74	.2297	0.08	.5319	0.88	.8106	1.68	.9535
−2.90	.0019	−1.54	.0618	−0.72	.2358	0.10	.5398	0.90	.8159	1.70	.9554
−2.85	.0022	−1.52	.0643	−0.70	.2420	0.12	.5478	0.92	.8212	1.72	.9573
−2.80	.0026	−1.50	.0668	−0.68	.2483	0.14	.5557	0.94	.8264	1.74	.9591
−2.75	.0030	−1.48	.0694	−0.66	.2546	0.16	.5636	0.96	.8315	1.76	.9608
−2.70	.0035	−1.46	.0721	−0.64	.2611	0.18	.5714	0.98	.8365	1.78	.9625
−2.65	.0040	−1.44	.0749	−0.62	.2676	0.20	.5793	1.00	.8414	1.80	.9641
−2.60	.0047	−1.42	.0778	−0.60	.2743	0.22	.5871	1.02	.8461	1.82	.9656
−2.55	.0054	−1.40	.0808	−0.58	.2810	0.24	.5948	1.04	.8508	1.84	.9671
−2.50	.0062	−1.38	.0838	−0.56	.2877	0.26	.6026	1.06	.8554	1.86	.9686
−2.45	.0071	−1.36	.0869	−0.54	.2946	0.28	.6103	1.08	.8599	1.88	.9699
−2.40	.0082	−1.34	.0901	−0.52	.3015	0.30	.6179	1.10	.8643	1.90	.9713
−2.35	.0094	−1.32	.0934	−0.50	.3085	0.32	.6255	1.12	.8686	1.92	.9726
−2.30	.0107	−1.30	.0968	−0.48	.3156	0.34	.6331	1.14	.8729	1.94	.9738
−2.25	.0122	−1.28	.1003	−0.46	.3228	0.36	.6406	1.16	.8770	1.96	.9750
−2.20	.0139	−1.26	.1038	−0.44	.3300	0.38	.6480	1.18	.8810	1.98	.9761
−2.15	.0158	−1.24	.1075	−0.42	.3373	0.40	.6554	1.20	.8849	2.00	.9772
−2.10	.0179	−1.22	.1112	−0.40	.3446	0.42	.6628	1.22	.8888	2.05	.9798
−2.05	.0202	−1.20	.1151	−0.38	.3520	0.44	.6700	1.24	.8925	2.10	.9821
−2.00	.0228	−1.18	.1190	−0.36	.3594	0.46	.6773	1.26	.8962	2.15	.9842
−1.98	.0239	−1.16	.1230	−0.34	.3669	0.48	.6844	1.28	.8997	2.20	.9861
−1.96	.0250	−1.14	.1271	−0.32	.3745	0.50	.6915	1.30	.9032	2.25	.9878
−1.94	.0262	−1.12	.1314	−0.30	.3821	0.52	.6985	1.32	.9066	2.30	.9893
−1.92	.0274	−1.10	.1357	−0.28	.3897	0.54	.7054	1.34	.9099	2.35	.9906
−1.90	.0287	−1.08	.1401	−0.26	.3974	0.56	.7123	1.36	.9131	2.40	.9918
−1.88	.0301	−1.06	.1446	−0.24	.4052	0.58	.7191	1.38	.9162	2.45	.9929
−1.86	.0314	−1.04	.1492	−0.22	.4129	0.60	.7258	1.40	.9192	2.50	.9938
−1.84	.0329	−1.02	.1539	−0.20	.4207	0.62	.7324	1.42	.9222	2.55	.9946
−1.82	.0344	−1.00	.1587	−0.18	.4286	0.64	.7389	1.44	.9251	2.60	.9953
−1.80	.0359	−0.98	.1635	−0.16	.4365	0.66	.7454	1.46	.9279	2.65	.9960
−1.78	.0375	−0.96	.1685	−0.14	.4443	0.68	.7518	1.48	.9306	2.70	.9965
−1.76	.0392	−0.94	.1736	−0.12	.4523	0.70	.7580	1.50	.9332	2.75	.9970
−1.74	.0409	−0.92	.1788	−0.10	.4602	0.72	.7642	1.52	.9357	2.80	.9974
−1.72	.0427	−0.90	.1841	−0.08	.4681	0.74	.7704	1.54	.9382	2.85	.9978
−1.70	.0446	−0.88	.1894	−0.06	.4761	0.76	.7764	1.56	.9406	2.90	.9981
−1.68	.0465	−0.86	.1949	−0.04	.4841	0.78	.7823	1.58	.9429	2.95	.9984
−1.66	.0485	−0.84	.2005	−0.02	.4920	0.80	.7882	1.60	.9452	3.00	.9986
−1.64	.0505	−0.82	.2061	0.00	.5000	0.82	.7939	1.62	.9474	3.05	.9989
−1.62	.0526	−0.80	.2119	0.02	.5080	0.84	.7996	1.64	.9495		
−1.60	.0548	−0.78	.2177	0.04	.5160						

This table shows the probability $[N(d)]$ of observing a value less than or equal to d. For example, as illustrated, if d is −.24, then $N(d)$ is .4052.

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